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# ANNUAL STATISTICAL RETURNS

AND

## SHORT NOTES ON VACCINATION

IN

## BIHAR AND ORISSA

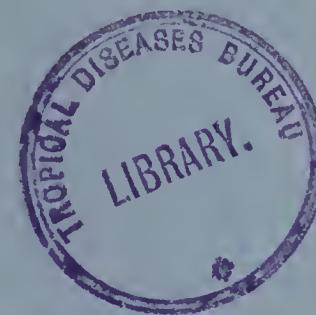
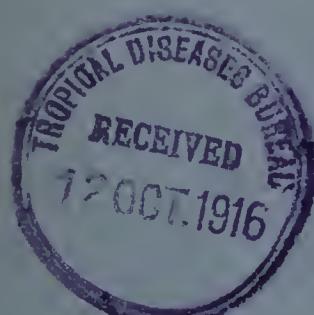
FOR THE YEAR

1915-16

BY

W. C. ROSS, MAJOR, I.M.S.,

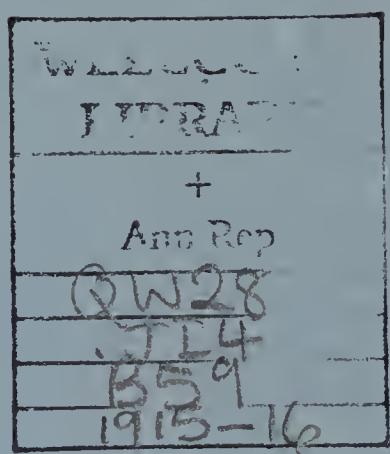
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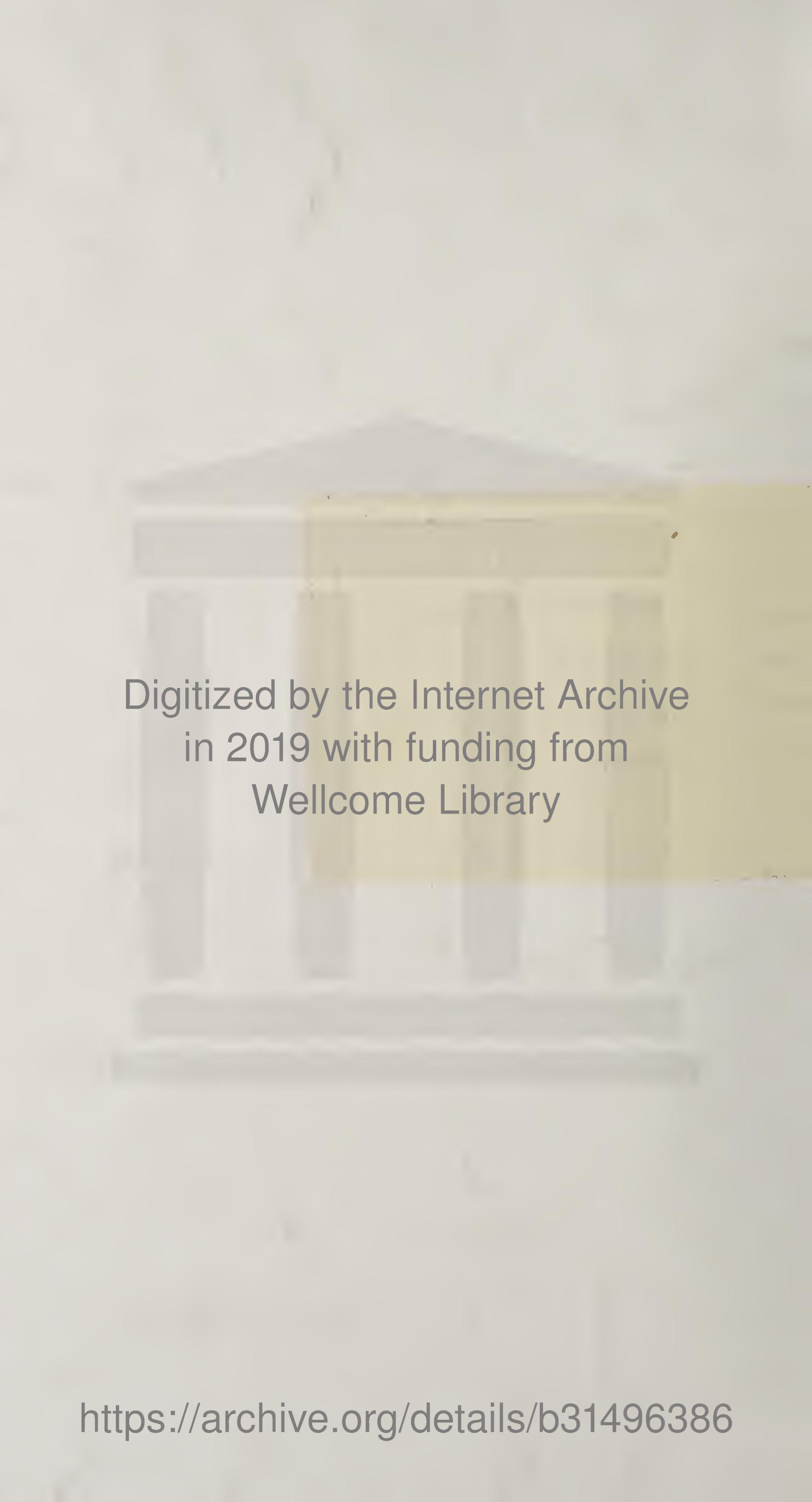


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*Offg. Sanitary Commissioner, Bihar & Orissa.*



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# ANNUAL VACCINATION REPORT BIHAR AND ORISSA.

1915-16.

**1. Staff.**—Lieutenant-Colonel E. C. Hare, I.M.S., was in charge of the Department from the 1st April to 16th May 1915, and from 26th November 1915 to 2nd February 1916: Dr. S. N. Tiwari from the 17th May to 25th June 1915 and Major W. C. Ross, I.M.S., from the 26th June to 25th November 1915 and again from 3rd February till the end of the year.

The office of Deputy Sanitary Commissioner, Bihar Circle, was held by Dr. S. N. Tiwari throughout the year. The office of Deputy Sanitary Commissioner, Chota Nagpur Circle, and charge of the Vaccine Dépôt at Namkum were held by Dr. T. Sebastian throughout the year. The office of Deputy Sanitary Commissioner, Orissa Circle, was held by Dr. B. P. Mazumdar during the year.

The inspecting staff consisted of 20 District Inspectors of Vaccination and 65 Sub-Inspectors of Vaccination (including 3 deputed for duty at the Vaccine Dépôt) in addition to the 3 Sub-Assistant Surgeons combining vaccination inspection with other duties in Angul. During the year 2 additional appointments to the cadre were sanctioned in order to provide Sub-Inspectors for the new Subdivision at Simdega and for the compulsory vaccination area in Patna and these are included in the above statement.

The total number of vaccinators employed in the Province during the year were 990 licensed and 181 paid against 999 licensed and 142 paid in the previous year.

In municipalities and in the districts of Puri, Sambalpur and part of Singhbhum vaccination was done by paid vaccinators, but otherwise the work throughout the Province was carried out under the licensing system except for the employment of paid vaccinators for short periods to deal with outbreaks of small-pox.

**2. Operations performed.**—The total number of operations performed during the year amounted to 1288419 as compared with 1314042 last year. The decrease amounts to 25623 and is in my opinion largely due to the deterioration in discipline and in energy of the inspecting staff.

Of the total number of operations 1255710 were performed by the Vaccination Department as compared with 1295179 last year: 1205202 operations were primary and the remaining 50503 were revaccinations as against 1242316 primary and 52863 revaccinations last year.

Primary operations and re-vaccinations both fell off during the year by 37114 and 2355, respectively. Of the total operations performed (1255710) 1221018 equal to 97.23 per cent. were successful as compared with 1270949 equal to 98.12 per cent. last year. The number of operations performed in municipalities fell by 1687 as compared with last year's returns. The ratios of success in municipalities were 96.66 for primary and 44.50 for revaccination as compared with 99.13 for primary and 55.83 for revaccination in rural areas.

**3. Vaccination in Districts.**—During the year under report, vaccination has been most successfully carried out in the Patna Division; from all the districts of which an increase is reported in the number of operations performed, viz., Gaya (9769), Patna (11394) and Shahabad (3498).

The Orissa Division on the other hand shows a very large decrease and the Cuttack district again heads the list with another large drop of 15967 in the number of operations performed. The districts of Balasore (9583) and Sambalpur (3660) both return the decreases noted against them and the districts of Puri and Angul are the only districts in this Division which show some increase of 5228 and 3337, respectively.

The Tirhut Division shows small decreases in all the districts except Champaran which returns a slight increase.

The Bhagalpur Division shows a large decrease in the Purnea district (8769) and small decreases in the Bhagalpur and Monghyr districts and a rise of 4594 in the return from the Santal Parganas.

The Chota Nagpur Division returns show small increases in the districts of Ranchi and Palamau and large decreases in the districts of Manbhum and Singhbhum amounting to 16352 and 6416, respectively. Hazaribagh district shows a small decrease of 1782.

**4. Vaccination in towns and compulsory areas.**—During the year under report the Vaccination Acts were extended to the area under the jurisdiction of the Jharia Mines Board and to the Patna and Phulwari Thanas of Patna District. Statement VII shows that during the year 25081 children under one year of age out of an available number of 29178 or 85.95 per cent. were successfully vaccinated.

The town of Bhagalpur again shows the smallest proportion of work done and the towns of Darbhanga, Hazaribagh and Chapra have given very unsatisfactory returns.

**5. Protection of Infants.**—Out of 1076026, the estimated number of children under one year available for vaccination, 624193 equal to 580.09 per 1000 were successfully vaccinated as compared with 629670 or 516.21 per 1000 in the previous year. The protection of infants in municipalities is separately shown in Statement VII and works out at a ratio of 859.59 per mille of the surviving infant population. The majority of Civil Surgeons report that there is considerable opposition to the early vaccination of infants and that there is a strong popular prejudice against the operation being performed on children under one year of age. Many Civil Surgeons and the Deputy Sanitary Commissioners also report that opposition to vaccination is chiefly confined to a few castes and sects such as illiterate Brahmins, Marwaris and a few Muhammadan communities, but that generally speaking vaccination is not objected to under normal conditions.

**6. Incidence and mortality of small-pox.**—During the last ten years the total number of deaths from small-pox in the districts of this Province has been 117785 from which it may be inferred that over 600000 cases of the disease occurred in that period.

During the first quinquennium the number of deaths was 83972 and during the second 33783. In the last quinquennium the mortality has risen during the five years as follows:—3088, 2741, 4347, 8979 and 14628.

The provincial ratios of the mortality from small-pox per 1,000 of population during the last five years have been .08, .06, .11, .22 and .42 respectively.

**7. Prevention of small-pox.**—The constant and considerable mortality noted in the preceding paragraph is in my opinion a complete demonstration both of the insufficiency and of the inefficiency of the existing arrangements for vaccination.

It is well known—in fact it is an admitted axiom—that thorough vaccination can and does stamp out small-pox altogether and in the light of that knowledge and in face of the above facts there is great necessity for a more definite vaccination policy.

The inefficiency of the Department is being severely dealt with and action is being taken against a large number of offices (about 28). The departmental rules and regulations are being strictly enforced and the staff generally has been warned against laziness, neglect of duty and breach of rules. I anticipate that I can establish discipline and efficiency in the cadre within two years and I am confident that a considerable improvement in the returns will ensue.

At the same time I do not consider that small-pox can be effectively dealt with and stamped out unless vaccination is made compulsory throughout the Province and I would recommend that the Vaccination Act should be modified so as to extend the age within which vaccination is required to one year and

generally enforced, that vaccination should be free and that the vaccination staff in all the districts should be put on one consolidated provincial cadre for purposes of administration and work.

**8. Inspection of work.**—During the year under report the three Deputy Sanitary Commissioners inspected 133,895 primary vaccinations as against 8,781 in the previous year. The figures for the previous year were unusually low as there were only two Deputy Sanitary Commissioners and both of them were employed on special duty which kept them at headquarters during most of the inspecting season. The inspecting work done this year by the Deputy Sanitary Commissioners has been very comprehensive and they have submitted valuable reports on the efficiency of the staff and the arrangements in sixteen of the twenty-one districts in the province. Action has been taken on these reports in each case.

The Civil Surgeons of the Province have inspected during the year 82485 primary and 10265 revaccination operations which results compare favourably with last year's figures of 78646 primary operations and 7162 revaccinations. The inspecting staff of 85 officers inspected 877792 operations during the year. The officers of the inspecting staff generally and with but few exceptions are more or less ignorant of their duties, negligent and careless and have not hitherto attempted to do their work thoroughly and in accordance with the rules. Various orders and circulars have issued during the year but with comparatively little effect. Inspecting officers generally have failed to comply with the rules regarding the keeping of their diaries and especially with the rule requiring an inspection note on the work, capacity and conduct of each vaccinator and subordinate officer whose work they inspected.

A class of instruction will be held at Patna in July at which the entire staff will be required to attend and at which the officers will be instructed in detail in the rules and regulations, the nature and scope of their duties and the standard of efficiency and work expected from them. The class will be instructed by the three Deputy Sanitary Commissioners and I shall inspect it and endeavour to imbue the minds of the officers with some ideas of discipline and efficiency.

**9. Supply of Vaccine.**—The Vaccine Depôt at Namkum supplied the Province with vaccine throughout the year. 3127290 doses were made during the year and 1798239 doses were issued, chiefly in capillary tubes containing one dose each. A reserve supply of 1559488 doses has been built up, and there is now no fear of any failure in supply from epidemics or other causes.

The staff, the management and the technique of operation, have all been reorganised during the year with excellent results both in efficiency and in economy.

The number of calves required has been greatly reduced by the improvement of the technique in operating whereby more than double the amount of pulp is obtained from each calf, the vaccine has been further diluted after a series of experiments ensuring the safety of the procedure and the out-put of doses per calf has been raised from about 1,500 to over 4,000. There is a corresponding reduction in the cost for calves, fodder, etc., and also the difficulty of obtaining a sufficient number of calves has been obviated.

The number of doses produced has risen from 771696 to 3127290.

The number of doses issued has risen from 541259 to 1798239.

The number of calves required has fallen from about 150 to 180 per month for 12 months to under 100 per month for 9 months and the Depôt will in future remain closed from early in April till the end of June as the vaccine produced in the hot weather is not of good quality and also because a sufficient supply can easily be manufactured in the remaining 9 months of the year.

The number of calves used during the year was 1128 for 3127290 doses as against about 500 calves for 771696 doses during the previous year.

The working cost of the Depôt for the year amounted to Rs. 34,537-3-3 for 3127290 doses against Rs. 19,367-7-9 for 771696 doses in the previous year.

Sales of vaccine, calves, etc., resulted in the receipt of Rs. 4,637-2-3 and Rs. 4,964-9-8 are still owing for vaccine supplied during the year. The average cost per dose fell from 4·8 pies to 2·1 pies or to 1·8 pies if the actual receipts for sales are taken into account. A further reduction in the average cost per dose may be expected next year, but even now it compares most favourably with the cost of production in other Depôts in India.

The services of the Superintendent (on probation) were dispensed with in October 1915, and a new Superintendent, Dr. C. N. Banarji, was appointed in November 1915, who has proved to be a capable and careful officer and has worked very satisfactorily. The arrangements for the supply of calves were altered and the supply is now ample and regular from three contractors. Two epidemics of foot and mouth disease broke out during the year, and the Depôt was closed temporarily on both occasions.

The contract for the supervision of the refrigerating plant has been stopped and further economies in the reduction of the staff and the cost of packing are contemplated. During the year the diet of the calves was considerably increased, but the extra cost is more than repaid by the larger and better return of vaccine and by the saving of time in convalescence.

The issue of vaccine direct to vaccinators instead of to Civil Surgeons for redistribution, was begun during the year and will be continued. The primary cost to the Depôt is greater, but the ultimate cost is less and the saving of time is a matter of importance with glycerinated vaccine. I propose to use collapsible tin tubes in place of glass capillary tubes next year and have arranged for a supply. The glass tubes are expensive and trouble some to load, and they break in transit. I also propose to manufacture some lanolinated vaccine next year as an experiment owing to the complaints received that glycerinated vaccine does not stand long hot journeys very well.

The great increase in output and the reorganisation of the entire system of working gave both Dr. Sebastian and Dr. Banarji a large amount of hard work, which was well and carefully done. These officers deserve great credit for the success of their efforts, and I have only to add that the work of the Depôt is now proceeding economically and smoothly and without fear of interruption.

**10. Cost of the Department.**—The total cost of the Department during the year as detailed in Statement II was Rs. 1,12,336 or Rs. 13,915 in excess of the previous year.

The cost per successful operation was Re. 0-1-5 against Re. 0-1-2 in the previous year, which is due to the increase in establishment *viz.*, :—one Deputy Sanitary Commissioner and his office establishment and two Sub-Inspectors of Vaccination.

**11. General.**—Better vaccination results may be expected from the present staff under more stringent supervision and more systematic control, but there is a limit to the possibilities in that direction under existing conditions, wherein vaccination is neither free nor compulsory, and the control of the staff and the work rests with Civil Surgeons in the districts.

With reference to the system of administration I am of opinion that it should be single and not dual, and I think that in most districts Civil Surgeons have little or no time to spare from their many and increasing medical responsibilities to accord the necessary time or attention to the detailed and personal supervision of vaccination work, if it is to be properly carried out, I consider that it would be more satisfactory if the Sanitary Department alone were responsible for this work and were strengthened accordingly and given the entire administrative charge of vaccination under revised and improved conditions, extending the Act, making vaccination free to all, and consolidating the establishment in one cadre of paid vaccinators and Inspecting Officers.

In conclusion I desire to bring to the notice of Government the large amount of useful work done by the three Deputy Sanitary Commissioners during the year in inspecting vaccination work and reporting on the efficiency of the staff and work in almost all the districts of the Province.

W. C. ROSS, MAJOR, I.M.S.,  
*Offg. Sanitary Commissioner.*

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STATEMENTS.

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## Statement No. I.—Showing particulars of Vaccination in the

Number*	District.	Population of district according to the census of 1911.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of persons vaccinated.			Average number of persons vaccinated by each vaccinator.	Total.
					Male.	Female.	Total.		
1	2	3	4	5	6	7	8		
<i>Patna Division.</i>									
1	Patna ...	... { By paid Vaccinators ...	... { 1609631	777 { 13	5440	4877	10317	793	10121
		... { By licensed Vaccinators	... {	60	30522	27560	58082	968	58003
2	Gaya ...	... { By paid Vaccinators ...	... { 2161010	458 { 12	4306	4144	8450	704	8364
		... { By licensed Vaccinators	... {	76	33694	33137	66811	870	66340
3	Shahabad ...	... { By paid Vaccinators ...	... { 1865630	426 { 17	3061	2365	5428	819	5278
		... { By licensed Vaccinators	... {	193	32982	27695	60677	589	60202
Total of Patna Division		... { By paid Vaccinators ...	... { 5636301	505 { 42	12807	11386	24193	576	23763
		... { By licensed Vaccinators	... {	329	97198	88372	185570	776	184844
<i>Tirhut Division.</i>									
4	Saran ...	... { By paid Vaccinators ...	... { 2289778	853 { 5	1125	1021	2146	429	2131
		... { By licensed Vaccinators	... {	69	40943	37519	73462	1137	78457
5	Champaran ...	... { By paid Vaccinators ...	... { 1909385	540 { 2	592	506	1098	549	1079
		... { By licensed Vaccinators	... {	50	35132	32100	67232	1344	66935
6	Muzaffarpur ...	... { By paid Vaccinators ...	... { 2845514	937 { 6	1977	1730	3707	618	3423
		... { By licensed Vaccinators	... {	79	52094	49143	101237	1281	100639
7	Darbhanga ...	... { By paid Vaccinators ...	... { 2929682	875 { 7	1791	1442	3233	461	2764
		... { By licensed Vaccinators	... {	69	47363	45015	92378	1539	92148
Total of Tirhut Division		... { By paid Vaccinators ...	... { 9973359	791 { 20	5485	4699	10184	509	9397
		... { By licensed Vaccinators	... {	258	175532	163777	339309	1315	338179
<i>Bhagalpur Division.</i>									
Monghyr ...		... { By paid Vaccinators ...	... { 2131381	543 { 4	1490	1403	2893	723	2846
		... { By licensed Vaccinators	... {	41	42784	42405	85189	2077	85162
9	Bhagalpur ...	... { By paid Vaccinators ...	... { 2139318	506 { 12	2164	2234	4698	391	4337
		... { By licensed Vaccinators	... {	51	35040	33763	68803	1349	68720
10	Purnea ...	... { By paid Vaccinators ...	... { 1989637	308 { 10	2244	1624	3868	386	2217
		... { By licensed Vaccinators	... {	49	25645	23611	49256	1005	48509
11	Santal Parganas ...	... { By paid Vaccinators ...	... { 1882973	344 { 4	1010	751	1761	440	1555
		... { By licensed Vaccinators	... {	62	29734	27692	56826	916	54290
Total of Bhagalpur Division.		... { By paid Vaccinators ...	... { 8143309	437 { 30	7208	6012	13220	440	10955
		... { By licensed Vaccinators	... {	203	133203	126871	200074	1281	256681
<i>Orissa Division.</i>									
12	Cuttack ...	... { By paid Vaccinators	... { 2109139	577 { 11	9141	7299	16740	1521	10601
		... { By licensed Vaccinators	... {	63	43576	37866	81442	1292	75803
13	Balasore ...	... { By paid Vaccinators	... { 1055568	506 { 11	4850	3356	8206	746	1669
		... { By licensed Vaccinators	... {	42	10316	16074	35390	842	30733
14	Angul ...	... { By licensed Vaccinators	... { 199405	118 { 15	5971	5415	11386	759	7007
15	Puri ...	... { By paid Vaccinators	... { 1023402	409 { 29	20838	18083	38921	1342	36578
16	Sambalpur ...	... { By paid Vaccinators	... { 744193	104 { 13	12501	11448	23949	1812	23061
Total of Orissa Division		... { By paid Vaccinators	... { 5131707	573 { 64	47630	40186	87816	1372	73909
		... { By licensed Vaccinators	... {	120	68863	59355	128218	1068	8

districts of Bihar and Orissa during the year 1915-16.

Primary Vaccination.				Revaccination.				Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.		Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
Successful.																	
Under one year.	One year and under six years.	Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.	Revaccination.	Primary.	Revaccination.	Number.	Ratio per 1,000 of population.	Number.	Ratio per 1,000 of population.			
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
4717	4915	0850	175	196	99	..	99.03	53.51	42.17	1.73	..	49853	30.97	369	.22		
25775	30707	57861	39	80	80	..	99.82	100.0	..	..	..	..	..	..	..		
2788	4240	8266	25	86	22	37	99.12	44.89	34.59	..	..	..	..	..	..		
27756	37576	66321	93	171	146	22	99.66	97.98	..	..	..	..	..	..	..		
3074	1196	5124	73	148	93	18	98.42	71.53	34.85	1.33	12.16	51149	27.41	195	.10		
24557	32875	59602	31	475	67	19	99.05	21.27	..	..	..	..	..	..	..		
11179	10351	232.0	272	430	214	65	98.93	57.06	37.09	1.14	12.70	168735	29.03	789	.13		
78088	99158	183781	163	726	323	41	99.51	47.15	..	..	..	..	..	..	..		
1350	587	1965	64	15	7	..	95.06	40.66	34.76	3.02	..	83080	36.28	149	.06		
30750	44392	77138	727	5	5	..	99.23	100.00	..	..	..	..	..	..	..		
722	334	1069	6	19	8	2	99.62	47.05	35.76	..	..	..	..	..	..		
32551	33673	66746	68	297	236	7	90.81	81.37	..	..	..	..	..	..	..		
2302	1044	3365	58	284	196	88	100.0	100.0	..	..	..	..	..	..	..		
58521	416.9	100324	315	598	352	246	100.0	100.0	..	..	..	..	..	..	..		
1652	1065	2744	3	469	112	204	99.38	42.26	32.50	..	..	..	..	..	..		
50930	40880	91910	7	230	106	6	99.74	47.32	..	..	..	..	..	..	..		
6026	3050	0143	133	787	323	294	98.69	65.51	34.87	1.41	37.35	342152	34.30	699	.07		
172782	16.534	336118	1117	1130	600	259	99.71	80.25	..	..	..	..	..	..	..		
2130	690	2835	8	47	17	..	99.89	36.17	41.28	..	..	87612	41.10	590	.27		
30912	53747	85137	2	27	10	..	99.97	37.03	..	..	..	..	..	..	..		
2235	1065	4254	70	361	18	8	99.69	50.99	34.83	3.13	2.21	74613	35.82	793	.37		
38695	29879	68689	13	83	66	4	99.97	8.54	..	..	..	..	..	..	..		
1156	998	2187	7	1651	541	4	98.95	32.84	25.37	..	..	..	..	..	..		
30894	16953	48214	31	747	264	2	99.45	35.43	..	..	..	..	..	..	..		
1128	358	1520	7	206	108	7	98.19	54.27	30.53	..	..	..	..	..	..		
37103	16845	54168	56	2536	1595	179	99.87	67.67	..	..	..	..	..	..	..		
6640	4011	10786	93	2265	843	19	99.88	37.66	33.31	..	..	..	..	..	..		
139691	117424	256208	102	3393	1935	185	99.85	60.31	..	..	..	..	..	..	..		
4153	4695	10063	410	6139	2179	1194	98.74	44.08	42.63	3.87	10.44	135667	64.32	137	.06		
38873	30973	74813	483	5384	2261	1518	99.32	54.93	..	..	..	..	..	..	..		
550	946	1616	25	6537	4561	439	98.29	74.81	36.53	1.49	6.71	61900	58.72	344	.32		
9878	17488	30524	62	4657	1058	3194	90.52	72.31	..	..	..	..	..	..	..		
3131	3167	6416	229	4379	8270	362	96.65	81.80	48.57	3.26	8.26	7842	39.32	..	..		
12176	21572	36792	730	343	206	22	97.20	64.17	36.73	1.89	6.41	48170	47.06	20	.02		
15323	6525	21876	366	888	496	39	96.39	58.42	30.37	1.58	4.39	26865	36.09	29	.03		
32202	33738	70347	1531	13007	7443	1604	97.10	60.94	38.66	2.06	12.18	280534	54.66	539	.10		
51882	51628	111753	774	14670	6589	5074	98.00	68.66	..	..	..	..	..	..	..		

Number.	District.	Population of district according to the census of 1911.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of persons vaccinated.			Average number of persons vaccinated by each vaccinator.	Total.
					Male.	Female.	Total.		
1	2	3	4	5	6			7	8
<i>Chota Nagpur Division.</i>									
17	Hazaribagh ...	... { By paid Vaccinators ... } 1288609	183 { 3 44 }	637 23235	553 21056	1190 44291	396 1006	1164 43845	
18	Ranchi ...	... { By paid Vaccinators ... } 1387073	195 { 3 44 }	905 23328	833 21608	1798 44936	599 1021	1657 43782	
19	Palamu ...	... { By paid Vaccinators ... } 687710	139 { 4 26 }	1546 16011	956 14179	2502 30190	625 1161	555 20899	
20	Manbhum ...	... { By paid Vaccinators ... } 1547576	373 { 6 41 }	3762 27674	2925 22822	6687 50496	1081 1231	5737 43415	
21	Singhbhum ...	... { By paid Vaccinators ... } 691394	178 { 9 11 }	4540 6063	3960 5362	8500 11425	944 1038	8221 10800	
Political States of Singhbhum.		By licensed Vaccinators ...	148646	246 { 4 }	2862	2249 5.11	1277	4851	
Total of Chota Nagpur Division.		{ By paid Vaccinators ... } 5754008	207 { 25 170 }	11450 99173	9227 87276	20377 186449	827 1096	17334 176592	
Total of Vaccine Department.		{ By paid Vaccinators ... } 34038684	413 { 181 990 }	81580 573969	71510 525651	156090 1099620	862 1110	135358 1069844	
Total Dispensary Department		Total ...	... { 1171 }	658549	597161	1255710	1072	1205202	
Total Railways		...	...	307	154	461	†200	285	
Total Cooly Department		...	...	867	423	1290	...	839	
Total Jails and Cantonments		...	...	10929	7421	18350	...	8834	
Grand Total		...	...	1174	682659	605760	1288419	1097	12.7591

\* Cantonment only.

† Darbhanga district only.

Primary Vaccination.				Revaccination.				Percentage of successful cases in which the results were known.	Persons successfully vaccinated per 1,000 of population.	Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
Under one year.	Over one and under six years.	Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.			Primary.	Revaccination.	Number.	Rate per 1,000.	Number.	Rate per 1,000.
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
534	613	1153	3	26	13	...	99.31	50.00	33.24	.25	..	46442	36.04	31	.02
27700	15814	43834	4	446	300	...	99.98	87.44	37.56	.009	...	5.697	37.27	44	.03
1166	472	1655	...	141	108	7	99.87	80.59	37.56	..	4.96	5.697	37.27	44	.03
35533	8148	43773	8	1154	931	103	99.90	88.58	37.56	.01	8.92	23834	34.70	42	.06
245	124	515	16	1947	1130	202	95.94	64.45	46.25	2.68	10.36	63376	40.88	150	.03
21133	8352	29724	94	291	235	16	99.07	85.45	46.25	.31	6.49	29105	41.91	62	.08
558	8994	4639	1097	950	591	25	99.97	63.71	34.92	19.12	2.63	...	...	...	...
22471	20535	43321	7	7081	4838	71	99.79	69.01	34.92	.01	1.00	1292258	37.30	4593	.13
6536	1571	8157	37	279	88	104	99.67	50.28	28.11	.45	37.27	...	...	...	...
6184	4497	10728	20	625	397	4	99.51	63.92	28.11	.18	.64	...	...	...	...
3191	1333	4843	7	260	104	4	99.97	75.78	34.75	.14	1.53	5380	37.12	...	...
9030	5774	16119	1153	3343	1930	338	99.61	64.22	36.36	6.65	10.11	219764	38.19	329	.15
116652	58670	376223	140	9857	6985	198	99.87	72.31	36.36	.07	2.00	...	...	...	...
65095	56924	129345	2781	20732	10753	2400	97.78	58.67	35.67	2.05	11.57	...	...	...	...
559098	487443	1064086	2296	29776	16531	5757	99.37	68.82	35.67	.21	19.33	1292258	37.30	4593	.13
621193	514307	1193731	5077	50508	27287	8157	99.46	64.43	35.67	.42	16.14	...	...	...	...
131	80	215	70	176	25	151	100.00	100.00	...	24.56	85.79	...	...	...	...
698	73	771	2	461	293	2	93.2	63.83	...	.24	.43	...	...	...	...
952	1104	3730	5124	9496	496	7311	100.00	68.46	...	57.87	76.99	...	...	...	...
349	183	2220	142	10187	6014	1026	97.41	65.64	...	5.81	10.07	...	...	...	...
626323	545807	1200667	1045	70828	35115	10347	99.46	64.81	...	.65	23.56	...	...	...	...

## Summary.

1	Total number of persons vaccinated.		Total number of operations performed.		Percentage of successful cases in which the results were known.		Average number of persons vaccinated by each vaccinator.		Number of children successfully vaccinated.		Ratio of successful vaccinations per 1,000 of population.	Total cost of Department.	Average cost of each successful case.
	Primary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination.	Vaccinators employed.	Persons vaccinated by each vaccinator.	Under 1 year.	One and under 6 years.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
BY SPECIAL STAFF.													
Statement (I) ...	1205202	50508	1205202	50508	99.46	64.43	1,171	1,072	624193	544367			
BY DISPENSARY STAFF.													
Statement III ...	285	176	285	176	100.00	100.00	1	* 200	131	80	35.67	1,12,333 0 2	0 1 5
BY OTHER AGENCIES.													
Railways, Cooly Depot, Jails and Cantonments.	12104	20144	12104	20,144	98.31	66.09	(a) 2	302	1990	1360			
Total ...	1217591	70828	1217591	70,828	99.46	64.81	1,174	1,097	626323	545807	25.67	1,12,336 0 2	0 1 5

\* Darbhanga only.

(a) Cantonment only.

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**STATEMENT II.**

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## Statement No. II.—Showing the cost of vaccination in the

No.	Circle and district.	European supervising officer.	Expen											
			Pay.	Pay.	Paid vaccinators.	Pay.	Licensed vaccinators.	Pay.	Clerks.	Pay.	Peons, etc.	Pay.	Pay.	Pay.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
PATNA DIVISION.														
1	Patna	...	...	...	6	1,929 4 0	14	1,002 4 4	60	238 7 6	...	...	1	28 6 5
2	Gaya	...	...	...	5	1,825 0 0	12	966 11 10	76	188 2 6	...	...	...	...
3	Shahabad	...	...	...	5	2,009 11 6	17	962 9 10	103	218 13 6	...	...	...	...
Total of Patna Division			...	...	16	5,763 15 6	43	2,931 10 0	239	645 7 6	...	...	1	28 6 5
TIRHUT DIVISION.														
4	Saran	...	...	...	4	1,566 0 0	5	660 0 0	69	226 14 0	...	...	...	...
5	Champaran	...	...	...	3	1,218 6 11	2	273 0 0	50	262 13 0	...	...	...	...
6	Muzaffarpur	...	...	...	4	2,354 2 11	6	526 0 0	79	150 5 0	...	...	...	...
7	Darbhanga	...	...	...	4	1,667 9 2	8	559 5 8	60	86 9 6	1	60 0 0	...	...
Total of Tirhut Division			...	...	15	6,806 3 0	21	2,018 5 8	258	726 9 6	1	60 0 0	...	...
BHAGALPUR DIVISION.														
8	Monghyr	...	...	...	4	1,515 0 0	4	390 0 0	41	74 12 6	...	...	2	108 0 0
9	Bhagalpur	...	...	...	5	2,850 0 0	12	1,012 3 10	51	...	...	...	...	...
10	Purnea	...	...	...	4	1,545 3 11	10	939 3 10	49	30 0 0	...	...	...	...
11	Santal Parganas	...	...	...	7	2,225 12 7	4	343 11 8	62	19 0 0	...	...	...	...
Total of Bhagalpur Division...			...	...	20	8,136 0 6	30	2,685 2 4	203	123 12 6	...	...	2	108 0 0
ORISSA DIVISION.														
12	Cuttack	...	...	...	4	1,481 3 7	11	1,352 9 8	63	...	...	...	...	...
13	Balasore	...	...	...	3	1,211 15 9	11	537 15 4	42	...	...	...	...	...
14	Angul	...	...	...	3	2,076 4 8	...	...	15	...	...	...	...	...
15	Puri	...	...	...	3	1,283 6 1	29	3,760 2 3	...	...	...	...	...	...
16	Sambalpur	...	...	...	3	1,260 0 0	13	1,519 3 7	...	...	...	...	2	42 9 3
Total of Orissa Division			...	...	16	7,315 14 1	64	7,169 14 10	120	...	...	...	2	42 9 3
CHOTA NAGPUR DIVISION.														
17	Hazaribagh	...	...	...	4	1,435 14 1	3	257 11 9	44	...	...	...	...	...
18	Ranchi	...	...	...	5	1,500 15 6	4	564 0 0	44	...	...	...	...	...
19	Palamau	...	...	...	3	1,153 1 9	4	225 3 2	26	...	...	...	...	...
20	Manbhum	...	...	...	3	1,105 0 0	6	428 11 10	41	68 0 0	...	...	...	...
Total of Chota Nagpur Division			...	...	18	6,394 15 4	26	2,126 12 11	170	68 0 0	...	...	...	...
Total of vaccine circle			...	...	85	34,417 0 5	181	16,931 13 9	990	1,563 13 6	1	60 0 0	5	178 15 8
ESTABLISHMENT OF THE DEPUTY SANITARY COMMISSIONER, BIHAR CIRCLE.														
Ditto ORISSA CIRCLE			...	...	1	4,041 15 0	...	...	...	...	2	971 14 3	2	177 0 0
Ditto CHOTA NAGPUR CIRCLE.			...	...	1	6,232 8 0	...	...	...	...	2	783 11 2	2	211 1 8
Total			...	...	3	17,474 7 0	...	...	...	...	6	2,689 5 2	7	690 5 9
Total of province			...	...	88	51,891 7 5	184	16,931 13 9	990	1,563 13 6	7	2,749 5 2	12	869 5 5

*Province of Bihar and Orissa during the year 1915-16.*

Total pay of establishment.	Travelling allowance.		Contingencies.				Paid from								Number of all successful vaccinations and revaccinations.	Average cost of each successful case.
			Cost of lymph.	Other contingencies.	Total cost.	Imperial Fund.	Provincial Fund.		Local Fund.	Municipalities.	Native State.	Total.				
15	16	17	18	19	20	21	22	23	24	25	26	27				
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		
3,198 6 3	1,421 3 0	...	230 15 6	4,850 8 9	...	3,759 11 0	170 0 0	920 13 9	...	4,850 8 9	68438	0 1 1				
2,979 14 4	1,487 10 6	...	692 6 3	5,159 15 1	...	3,675 6 6	658 0 4	826 8 3	...	5,159 15 1	75641	0 1 1				
3,191 2 10	1,481 2 3	...	38 2 3	5,056 7 4	...	3,969 3 9	160 0 0	927 3 7	...	5,056 7 4	65016	0 1 2				
9,369 7 5	4,389 15 9	...	1,307 8 0	15,066 15 2	...	11,404 5 3	988 0 4	2,674 9 7	...	15,066 15 2	209005	0 1 1				
2,452 14 0	1,295 9 6	...	234 0 0	3,982 7 6	...	2,966 9 6	196 14 0	819 0 0	...	3,982 7 6	79608	0 0 9				
1,754 3 11	876 2 0	...	43 4 5	2,673 10 4	...	2,386 12 1	...	286 14 3	...	2,673 10 4	68255	0 0 7				
3,030 7 11	493 9 0	...	341 6 0	3,865 6 11	...	3,115 4 11	...	750 2 0	...	3,865 6 11	104624	0 0 7				
2,373 8 4	1,137 13 4	...	115 2 0	3,626 7 8	...	2,978 14 0	160 0 0	487 9 8	...	3,626 7 8	95237	0 0 7				
9,611 2 2	3,803 1 10	...	733 12 5	14,148 6 5	...	11,447 8 6	356 14 0	2,343 9 11	...	14,148 0 5	347724	0 0 7				
2,087 12 6	1,254 12 4	...	299 13 0	3,642 5 10	...	2,929 6 4	...	712 15 6	...	3,642 5 10	87909	0 0 7				
3,862 3 10	668 5 6	...	225 6 0	4,755 15 4	...	3,678 5 6	411 5 4	666 4 6	...	4,755 15 4	74532	0 1 0				
2,514 6 9	1,226 9 1	...	60 0 0	3,800 15 10	...	2,861 13 0	309 3 3	629 15 7	...	3,800 15 10	51206	0 1 2				
2,588 8 3	2,335 9 0	...	123 5 6	5,047 6 9	...	4,658 7 7	...	388 15 2	...	5,047 6 9	57558	0 1 4				
11,052 15 4	5,485 3 11	...	708 8 6	17,246 11 9	...	14,128 0 5	720 8 7	2,398 2 9	...	17,246 11 9	271205	0 1 0				
2,836 13 3	1,022 4 6	...	143 0 0	4,002 1 9	...	2,641 8 1	596 0 0	764 9 8	...	4,002 1 9	89925	0 0 8				
1,749 15 1	280 8 10	...	74 15 0	2,105 6 11	...	1,567 7 7	288 4 8	246 10 8	...	2,105 6 11	38609	0 0 10				
2,076 4 8	1,486 0 0	...	46 2 6	3,588 7 2	...	3,588 7 2	...	...	...	3,588 7 2	9686	0 5 11				
5,043 8 4	1,374 9 9	...	124 12 0	6,542 14 1	...	2,772 15 10	3,594 1 5	175 12 10	...	6,542 14 1	37595	0 2 9				
2,821 12 10	786 12 0	6 4 0	76 8 0	3,691 4 10	...	2,111 11 6	1,427 11 3	151 14 1	...	3,691 4 10	22606	0 2 7				
14,528 6 2	4,930 3 1	6 4 0	465 5 6	19,930 2 9	...	12,628 2 2	5,906 1 4	1,341 15 3	...	19,930 2 9	198421	0 1 7				
1,693 9 10	1,223 11 5	...	128 12 0	3,046 1 3	...	2,788 5 6	...	257 11 9	...	3,046 1 3	46709	0 1 0				
2,084 15 6	1,201 8 1	...	146 0 0	3,412 7 7	...	2,848 7 7	...	564 0 0	...	3,412 7 7	52111	0 1 0				
1,378 4 11	1,036 6 10	...	49 15 9	2,464 11 6	...	2,239 8 4	71 15 0	153 4 2	...	2,464 11 6	31808	0 1 2				
1,601 11 10	694 6 10	...	86 8 2	2,382 10 10	...	1,937 6 10	241 11 10	203 8 2	...	2,382 10 10	54056	0 0 8				
1,851 2 2	777 12 6	...	80 4 0	2,709 2 8	...	2,426 4 10	...	112 0 0	170 13 10	2,709 2 8	24563	0 1 9				
8,589 12 3	4,933 13 8	...	491 7 11	14,015 1 10	...	12,240 1 1	313 10 10	1,290 8 1	170 13 10	14,015 1 10	209247	0 1 0				
53,151 11 4	23,542 6 3	6 4 0	3,706 10 4	80,406 15 11	...	61,902 1 5	8,285 3 1	10,048 13 7	170 13 10	80,406 15 11	1235782	0 1 0				
8,432 15 10	2,891 2 6	...	633 5 5	11,947 7 9	...	11,947 7 9	...	...	...	11,947 7 9	...	...				
5,190 13 3	3,242 11 9	...	764 7 6	9,198 0 6	...	9,198 0 6	...	...	...	9,198 0 6	...	...				
7,230 4 10	3,191 3 2	...	362 0 0	10,783 8 0	...	10,783 8 0	...	...	...	10,783 8 0	...	...				
20,854 1 11	9,315 1 5	...	1,759 12 11	31,929 0 3	...	31,929 0 3	...	...	...	31,929 0 3	...	...				
74,005 13 3	32,857 7 8	6 4 0	5,466 7 3	1,12,336 0 2	...	93,831 1 8	8,285 3 1	10,048 13 7	170 13 10	1,12,336 0 2	...	0 1 5				

## B—DISPENSARY VACCINATION.

Statement No. III.—Showing Dispensary Vaccination in the Province of Bihar and Orissa during the year 1915-16.

District.	Number of dispensaries in each district to which a vaccinator is attached.					Average number of vaccinators attached to dispensaries during the year.	Total number of persons vaccinated.	Average number of persons vaccinated by each vaccinator.	Primary vaccination.			Revaccination.			Percentage of successful cases in which the results were known.		Percentage of unknown cases to total cases.		
	1	2	3	4	5				Total.	Under one year.	Over one and under six years.	Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.	Revaccination.	Primary.
Patna ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gaya ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Shahabad ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Saran ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Champaran	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Muzaffarpur	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Darbhanga	...	...	1	1	200	200	200	129	71	200	...	...	...	...	...	...	...	...	...
Moughyr ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bhagalpur ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Purnea ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Santal Parganas	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cuttack ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Balasore ...	...	...	...	261	130	85	2	9	15	70	176	25	151	100.00	100.00	82.35	85.79	...	...
Angul ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puri ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sambalpur ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hazaribagh	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ranchi ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Palamau ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Manbhum ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Siughbhum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	...	1	1	461	*200	285	131	80	215	70	176	25	151	100.00	100.00	24.56	85.79	...	...

\* Darbhanga only.

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**COMPARATIVE STATEMENT No. IV.**

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*Comparative Statement No. IV.—Showing the number of persons primarily vaccinated, and the number of those per*

Establishment.	Persons primarily								
	1906-07		1907-08		1908-09		1909-10		
	Total Number.	Number successfully vaccinated.	Total Number.	Number successfully vaccinated.	Total Number.	Number successfully vaccinated	Total Number.	Number successfully vaccinated.	Total Number.
1	2	3	4	5	6	7	8	9	
Government	...	...	...	...	...	...	...	...	...
Municipal	...	...	44127	42524	45895	43722	48330	44769	46047
Local Fund	...	...	74590	72479	93848	91055	96959	97104	92291
Native States	...	...	4920	4903	3885	3865	5581	5377	4269
Dispensaries	...	...	1107	1088	961	806	689	591	586
Licensed Vaccinators	...	...	1061164	1051091	1057110	1046540	1005512	994418	1053044
Total	...	1185908	1172085	1201699	1185988	1157071	1142259	1196237	1191549

sons who were successfully vaccinated, in the Province of Bihar and Orissa in each of the undermentioned official years.

vaccinated.

1910-11		1911-12		1912-13		1913-14		1914-15		1915-16	
Total Number.	Number successfully vaccinated.										
10	11	12	13	14	15	16	17	18	19	20	21
...	...	...	...	...	...	...	...	649	515	10277	10046
46553	44671	46769	44879	43379	42311	44167	42480	47235	45310	43099	41661
97068	95561	96381	95057	86551	85965	82592	81790	76264	75266	94056	84636
4970	4956	4964	4943	4641	4581	5587	5578	6745	6740	4851	4843
516	415	384	303	188	185	186	186	178	176	285	215
1118587	1109896	1135713	1128318	1133310	1126927	1149467	1143922	1114753	1109554	1065023	1059266
1267694	1253499	1284211	1273440	1268069	1259969	1281999	1273946	1245824	1237561	1217591	1200667

## Statement No. V.—Showing particulars of vaccination

District.	Total number of persons vaccinated.	Total number inspected—								Percentage of		
		By Deputy Sanitary Commissioners or Civil Surgeons.				Native Superintendents or other Inspecting Officers.				By Deputy Sanitary		
		Deputy Sanitary Commissioners.	Civil Surgeons.	District Inspectors.	Sub-Inspectors.	Deputy Sanitary Commissioners.						
1	2	3	4	5	6	7	8	9	10	11	12	13
Patna ...	68501	548	7443	...	1674	243	30611	...	35612	...	10.86	...
Gaya ...	75110	1477	...	...	4164	...	18322	61	38068	6	...	...
Shahabad ...	65485	1091	6217	...	5376	...	13484	...	19249	...	9.49	...
Saran ...	80701	810	27050	...	5881	703	37201	2	59905	...	33.51	...
Champanar	68186	425	23462	...	8572	75	28520	...	27073	51	34.40	...
Muzaffarpur	104070	1595	...	...	19810	713	21837	...	42998	206	...	...
Darbhanga	95252	781	...	...	2244	81	17244	...	43311	...	...	...
Monghyr	88008	74	12001	...	1848	...	17831	...	44452	...	13.63	...
Bhagalpur	73151	2085	12950	...	1002	1632	16908	112	33162	158	17.70	...
Purnea	50726	2308	...	...	1679	11	8504	205	11066	1141	...	...
Santal Parganas	55845	3178	...	...	2697	1528	13514	307	30304	1033	...	...
Cuttack ...	90556	18311	8973	...	3906	59	10784	539	38468	130	9.90	...
Balasore	34503	12722	3854	...	1336	1209	2686	...	16127	1667	11.17	...
Angul ...	7007	4379	...	...	779	1766	3738	804	4190	2899	...	...
Puri ...	38606	1098	9241	...	1960	689	18806	64	23623	167	23.93	...
Sambalpur ...	23062	1434	...	...	2011	676	11062	238	11991	346	...	...
Hazaribagh	45806	1224	2122	...	815	...	7483	82	16749	315	4.63	...
Ranchi ...	49398	3911	1808	...	5936	...	6978	335	26935	...	3.66	...
Palamau ...	30553	2375	...	...	4613	126	6574	30	12321	700	...	...
Manbhum ...	49189	9510	7341	...	2548	1382	4283	1409	9148	1143	14.92	...
Singhbhum	19025	1142	11433	...	3140	314	8072	133	9601	182	...	...
Political States of Singhbhum.	4851	260	...	...	484	58	2042	...	2273	217	...	...
<b>TOTAL ...</b>	<b>1217501</b>	<b>70828</b>	<b>133895</b>	<b>...</b>	<b>82485</b>	<b>10265</b>	<b>306484</b>	<b>4321</b>	<b>556626</b>	<b>10361</b>	<b>10.99</b>	<b>...</b>

verified by Inspecting Officers during the year 1915-16.

Inspection to total number vaccinated.						Percentage of cases found successful to total number inspected.								Percentage of successful cases reported by vaccinators.	
Commissioners or Civil Surgeons.		By Native Superintendents or other Inspecting Officers.				By Deputy Sanitary Commissioners or Civil Surgeons.				By Native Superintendents or other Inspecting Officers.					
Civil Surgeons.		District Inspectors.		Sub-Inspectors.		Deputy Sanitary Commissioners.		Civil Surgeons.		District Inspectors.		Sub-Inspectors.			
Primary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
2.44	44.34	44.08	...	51.98	...	91.60	...	98.98	78.19	98.79	...	99.21	...	99.36	69.06
5.54	...	24.39	4.13	50.68	40	...	...	100.00	...	94.69	42.62	95.35	50.00	99.40	64.50
8.21	...	20.59	...	29.39	...	87.22	...	96.92	...	87.94	...	96.95	...	97.42	30.49
7.28	86.78	46.09	10.00	74.23	...	93.25	...	98.80	57.46	88.90	100.00	98.86	...	98.08	73.33
12.57	17.64	41.82	...	39.70	12.00	91.3	...	90.93	53.33	99.70	...	99.50	78.43	99.65	71.29
19.03	44.70	20.98	...	41.31	23.35	...	...	99.05	53.81	98.67	...	98.98	65.91	99.78	58.31
2.35	10.37	18.10	...	43.26	...	...	...	98.48	82.71	99.22	...	98.80	...	99.08	36.49
2.09	...	20.26	...	50.50	...	99.24	...	99.13	...	98.61	...	99.93	...	99.95	36.48
1.37	78.27	23.11	5.37	45.33	7.57	99.83	...	90.60	76.77	99.83	62.50	98.70	87.97	99.84	71.89
3.30	45	16.76	8.51	21.81	47.58	...	...	98.88	100.00	99.31	83.90	98.94	29.79	99.35	33.23
4.82	16.61	24.19	9.66	54.26	32.50	...	...	98.77	45.26	98.23	57.18	98.71	66.02	99.71	58.84
4.31	32	11.90	2.94	36.95	7.70	92.29	...	99.00	74.57	95.34	59.55	97.72	67.69	98.21	40.32
3.87	9.50	7.79	...	46.74	13.18	95.43	...	94.91	71.54	95.86	...	90.64	61.72	91.46	47.21
11.11	40.32	53.34	18.36	59.79	66.20	...	...	97.43	85.27	96.49	88.80	95.84	86.58	91.56	74.67
5.07	62.75	48.71	5.82	61.18	15.20	95.80	...	98.06	82.58	95.55	56.25	94.70	59.88	95.37	70.58
8.71	47.14	47.96	16.59	51.99	24.12	...	...	92.04	52.95	91.48	47.89	92.46	51.73	94.86	50.83
1.77	...	16.33	6.69	36.56	25.73	95.80	...	98.45	...	93.72	86.58	99.73	90.15	99.97	87.44
12.01	...	14.12	8.56	51.62	...	95.74	...	100.00	...	99.35	84.47	99.74	...	90.97	69.64
15.09	5.30	21.51	1.26	40.32	29.47	...	...	100.00	87.30	99.81	100.00	99.46	72.71	99.28	61.00
5.18	14.53	8.70	14.81	18.59	12.01	96.02	...	98.39	52.67	98.20	51.31	99.10	53.37	92.76	63.63
16.50	27.49	42.42	11.64	50.46	15.93	...	...	99.90	68.15	99.50	50.37	99.05	58.24	99.27	55.88
9.97	22.30	42.09	...	46.85	83.46	...	...	100.00	91.37	99.95	...	99.20	82.02	99.83	74.61
6.77	14.49	25.17	6.10	45.17	14.62	91.45	...	92.09	72.84	97.76	6.60	97.69	68.69	98.44	59.45

Statement No. VI.—Showing side by side the ratios, per 1,000 of population, of Deaths from

District.	1906-07		1907-08		1908-09		1909-10		
	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	
1	2	3	4	5	6	7	8	9	
Patna ...	... ...	·58	50407	1·69	52260	2·94	52570	1·23	51589
Gaya ...	... ...	·28	72720	1·93	73980	2·68	72395	·62	74725
Shahabad	... ...	·11	52483	·71	50939	1·76	53759	·67	46311
Saran ...	... ...	·11	74338	·29	65785	·96	74035	·84	76930
Champaran	... ...	·10	49019	·38	57722	·80	56148	·44	63172
Muzaffarpur	... ...	·05	99054	·09	101292	·23	101612	·22	98808
Darbhanga	... ...	·09	80126	·11	89884	·13	75833	·29	83005
Monghyr	... ...	·46	83081	1·00	80846	·61	78958	·30	79069
Bhagalpur	... ...	·93	79717	1·25	76312	·15	71328	·24	77682
Purnea	... ...	·55	59430	·41	52054	·08	50937	·36	61698
Santal Parganas	... ...	·51	63028	·66	58350	·71	65509	·36	67015
Cuttack	... ...	·14	77025	·29	95087	·28	107484	·12	134160
Palasore	... ...	·80	37841	1·25	29806	·64	35811	·56	44340
Angul ...	... ...	...	8886	...	8283	...	9022	...	7602
Puri ...	... ...	4·72	40682	2·24	55482	·83	53920	·16	52438
Sambalpur	... ...	·004	25024	·14	27441	·17	28265	·04	27124
Hazaribagh	... ...	·04	43816	·23	48899	1·27	42294	·42	42659
Ranchi	... ...	·02	46315	·23	53933	1·48	44656	·81	46968
Palamau	... ...	·02	17615	·15	16241	1·19	27936	1·42	31133
Manbhum	... ...	·08	54690	·31	63508	·46	62937	·21	58160
Singhbhum	... ...	·009	19007	·12	18527	·22	22721	·42	17409
Political State of Singhbhum ...	... ...	4903	...	3987	...	5377	...	4393	
Total	... ...	·39	139207	·67	1174618	·83	1194561	·45	1246390

small-pox and the number of successful vaccinations during the 10 years ending 1915-16.

1910-11		1911-12		1912-13		1913-14		1914-15		1915-16	
Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.	Ratio of deaths from small-pox.	Number of successful vaccinations.
10	11	12	13	14	15	16	17	18	19	20	21
·30	45665	·09	48687	·07	48768	·17	48480	·48	57665	·71	68438
·07	68104	·07	69923	·008	66965	·03	67817	·10	65855	·68	75641
·04	39890	·02	36809	·006	47086	·09	53812	·33	62079	·45	65016
·07	86741	·03	83221	·006	85339	·06	81699	·06	80729	·15	79608
·02	59887	·03	60354	·07	55486	·02	63100	·10	64146	·14	68255
·03	101395	·05	102535	·04	101405	·01	103052	·09	105292	·24	104624
·07	84025	·06	83343	·01	93546	·06	93735	·24	97760	·41	95237
·11	85497	·09	89123	·08	84475	·48	89024	·46	89749	·42	87999
·26	74438	·43	80294	·41	77274	·31	75244	·35	75831	·38	74532
·39	63167	·24	59469	·14	56956	·22	60587	·30	58496	·38	51206
·07	67446	·08	61909	·19	60236	·27	64815	·18	53182	·37	57558
·007	139487	·002	153747	·01	137175	·01	134227	·06	113297	·69	89925
·41	56052	·19	63287	·006	68271	·11	69059	·90	53281	·90	38609
...	9353	...	8207	...	5906	...	7945	...	7680	·01	9686
·007	53738	·006	53619	·02	55642	·07	47269	·02	33820	·30	37595
·08	33399	...	33153	·04	25955	·05	25063	·02	27561	·75	22606
·01	50075	·006	46544	·02	46150	·02	51777	·03	48299	·49	46709
·07	57541	·02	48913	·004	51096	·01	49989	·03	50958	·12	52111
·11	21059	·008	24782	...	23683	·07	21459	·10	28327	·17	31803
·01	60036	·0006	60120	·005	61191	·02	61316	·43	73369	·63	54056
·08	26593	·004	22841	·05	20254	·09	23496	·45	25909	·28	19526
...	4956	...	4967	...	4581	...	5654	...	6742	...	5037
·10	1288594	·08	1293587	·06	1275440	·11	1298619	·22	280027	·42	1235782

Statement No. VII.--Showing the protection afforded to infants in each town in the Province of Bihar and Orissa during the year 1915-16.

District.	Towns.	Number of births during the year ending 31st March 1910.	Number of deaths amongst infants under one year during the year ending 31st March 1916.	Number of successful vaccinations amongst infants under one year during the year ending 31st March 1916.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Patna	Patna	3220	666	2116	1st October 1884.
	Bihar	1341	212	935	1st April 1887.
	Dinapur	1109	231	795	28th January 1891.
	Barh	317	58	227	1st April 1887.
	Khagole	225	44	149	12th July 1910.
Gaya	Total	6212	1211	4222	
	Gaya	1916	763	1088	1st January 1883.
	Tikari	215	47	107	3rd , , 1891.
	Daudnagar	386	84	224	Ditto.
	Total	2517	894	1419	
Shahabad	Arrah	1424	293	1272	20th July 1885.
	Buxar	434	77	386	1st April 1887.
	Dumraon	526	114	183	Do.
	Jagadespur	333	68	344	20th December 1890.
	Sassaram	891	129	818	1st April 1887.
	Bhabhua	212	31	280	Ditto.
	Total	3820	712	3283	
Saran	Total of Patna Division.	12549	2817	8924	
	Chapra	1495	306	752	1st April 1887.
	Revelganj	905	146	269	12th December 1890.
	Siwan	57	75	329	1st April 1887.
	Total	2927	527	1350	
Chauhan	Motihari	350	92	204	1st April 1887.
	Bettiah	850	159	518	Ditto.
	Total	1200	251	722	

Statement No. VII.—Showing the protection afforded to infants in each town in the Province of Bihar and Orissa during the year 1915-16—contd.

District.	Towns.	Number of births during the year ending 31st March 1916.	Number of deaths amongst infants under one year during the year ending 31st March 1916.	Number of successful vaccinations amongst infants under one year during the year ending 31st March 1916.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Muzaffarpur	Muzaffarpur	1209	278	974	1st January 1886.
	Sitamarhi	313	61	265	1st April 1887.
	Hajipur	706	128	744	1st May 1890.
	Lalganj	344	63	320	1st April 1887.
Darbhanga	Total	2572	530	2303	
	Darbhanga	1996	419	1028	24th May 1884.
	Roserha	340	81	204	3rd January 1891.
	Samastipur	282	51	152	25th July 1910.
	Madhubani	534	69	268	1st April 1887.
Monghyr	Total	3152	620	1652	
	Total of Tirhut Division.	9851	1928	6027	
Bhagalpur	Monghyr	1878	364	1393	15th November 1882.
	Jamalpur	967	178	737	Ditto.
	Total	2844	542	2130	
Purnea	Bhagalpur	1818	307	963	15th February 1884 withdrawn on 16th October 1895 ; re-extended on 18th August 1898.
	Colgong	204	28	55	Ditto re-extended on 19th December 1901.
	Total	2022	335	1018	
	Purnea	431	68	240	1st July 1887.
	Kishanganj	241	56	206	12th November 1892.
	Katihar	328	30	130	8th August 1910.
	Forbesganj	157	24	132	9th August 1912.
	Total	1157	178	708	

Statement No. VII.—Showing the protection afforded to infants in each town in the Province of Bihar and Orissa during the year 1915-16—contd.

District.	Towns.	Number of births during the year ending 31st March 1916.	Number of deaths amongst infants under one year during the year ending 31st March 1916.	Number of successful vaccinations amongst infants under one year during the year ending 31st March 1916.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Santal Parganas	Sahibganj	495	62	351	1st May 1884.
	Deoghar	284	46	319	Ditto.
	Madhupur	325	39	263	22nd August 1910.
	Dumka	233	36	195	Notifications dated the 9th April 1884 and 23rd August 1910.
	Total	1337	183	1128	
Cuttack	Total of Bhagalpur Division.		7360	1238	4984
	Cuttack	1160	260	1255	1st September 1884.
	Kendrapara	457	146	270	7th February 1888.
	Jajpur	370	118	107	Ditto.
	Total	1987	524	1612	
Balasore	Balasore	507	99	353	7th February 1888.
Puri	Puri	679	421	248	Ditto.
Sambalpur	Sambalpur	389	145	317	7th March 1895.
Hazaribagh	Total of Orissa Division.		3562	1189	2530
	Hazaribagh	565	69	291	1st January 1885.
	Chatra	277	42	122	1st August 1885.
	Giridih	243	33	121	8th September 1910.
	Total	1085	144	534	
Ranchi	Ranchi	909	112	926	1st April 1887.
	Lohardaga	213	23	240	25th June 1892.
	Total	1122	135	1166	

Statement No. VII.—Showing the protection afforded to infants in each town in the Province of Bihar and Orissa during the year 1915-16—contd.

District.	Towns.	Number of births during the year ending 31st March 1916.	Number of deaths amongst infants under one year during the year ending 31st March 1916.	Number of successful vaccinations amongst infants under one year during the year ending 31st March 1916.	Date of extension Vaccination Act to town.
1	2	3	4	5	6
Palamu	Daltonganj	258	55	190	9th October 1890.
Manbhumi	Purulia	354	45	329	1st January 1887.
	Raghunathpur	193	39	130	9th February 1894.
	Jhaldha	202	27	56	9th July 1892.
	Total	749	111	515	
Singhbhum	Chaibassa	287	28	211	20th June 1892.
	Total of Chota Nagpur Division.	3501	473	2616	
	Total for the Province.	36823	7645	25081	



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ANNEXURE II.

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## Provincial Statement.—Showing the different kinds of lymph

District.	Primary vaccination.												Arm-to-arm	
	Direct from the calf.						With lanoline or glycerine lymph.							
	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.	Total.	Successful.		
1	2	3	4	5	6	7	8	9	10	11	12	13		
Patna	...	...	...	...	...	53390	53029	183	178	99.32	15111	15036		
Gaya	...	...	...	...	...	75110	74688	301	121	99.43	...	...		
Shahabad	...	...	...	...	...	55777	55235	453	89	99.02	9708	949		
Saran	...	...	...	...	...	80701	79192	703	806	98.13	...	...		
Champaran	...	...	...	...	...	68186	67952	130	104	99.65	...	...		
Muzaffarpur	...	...	...	...	...	97082	96743	290	49	99.65	6988	6951		
Darbhanga	...	...	...	...	...	95252	94952	274	26	99.68	...	...		
Mongbyr	...	...	...	...	...	88068	87972	26	10	99.82	...	...		
Bhagalpur	...	...	...	...	...	71358	71258	28	72	99.86	1793	1775		
Purnea	...	...	...	...	...	48116	47817	271	28	99.37	2610	2584		
Santal Parganas	...	...	...	...	...	55845	55688	94	63	99.71	...	...		
Cuttack	...	...	...	...	...	90556	85410	672	4,474	94.31	...	...		
Balasore	...	...	...	...	...	134503	32596	192	1715	91.49	...	...		
Angul	...	...	...	...	...	7007	6416	362	229	91.56	...	...		
Puri	...	...	...	...	...	38606	36820	1056	730	95.37	...	...		
Sambalpur	...	5415	5389	21	5	99.09	17647	16488	798	361	93.43	...	...	
Hazaribagh	...	...	...	...	...	45806	45733	64	9	99.84	...	...		
Ranchi	...	3730	3730	...	...	100.00	45668	45657	3	8	99.97	...	...	
Palamau	...	...	...	...	...	...	30553	30333	107	113	99.27	...	...	
Maubhum	...	...	...	...	...	...	42864	41684	77	1103	97.24	6325	6312	
Singhbhum	...	...	...	...	...	...	19025	18888	80	57	99.27	...	...	
Political States of Singhbhum	...	...	...	...	...	...	4851	4843	1	7	99.83	...	...	
<b>TOTAL</b>	...	9145	9119	21	5	99.71	1165911	1149394	6165	10352	99.58	42535	42154	

B. &amp; O. G. P. (any. Commr.) No. 15—450—18-6. 916.—

## II.

used and their rates of success during the year 1915-16.

vaccination.		Revaccination.																	
		Direct from the calf.						With lanoline or glycerine lymph.						Arm-to-arm vaccination.					
Unsuccessful.	Unknown.	Percentage of successful cases.		Total.	Successful.	Unsuccessful.	Unknown.	Total.	Successful.	Unsuccessful.	Unknown.	Total.	Successful.	Unsuccessful.	Unknown.	Percentage of successful cases.			
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
32	43	99.50	...	...	...	...	...	548	373	159	16	68.06	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	1477	953	305	219	64.52	...	...	...	...	...	...	
198	14	97.81	...	...	...	...	...	1084	283	745	56	26.10	7	2	5	...	...	28.57	
...	...	...	...	...	...	...	...	810	416	307	87	51.35	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	425	303	80	42	71.20	...	...	...	...	...	...	
33	4	99.47	...	...	...	...	...	1449	832	378	239	57.41	146	98	38	10	67.12	...	
...	...	...	...	...	...	...	...	781	285	285	211	36.46	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	74	27	47	...	36.48	...	...	...	...	...	...	
7	11	98.99	...	...	...	...	...	2085	1499	565	21	71.89	...	...	...	...	...	...	
16	10	99.00	...	...	...	...	...	2398	805	1587	6	33.56	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	3178	1870	1113	195	58.84	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	18311	4515	4638	9158	24.65	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	12722	6013	2091	4618	47.30	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	4379	3270	747	362	74.62	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	1098	775	235	88	70.58	...	...	...	...	...	...	
...	...	...	291	239	44	8	82.13	1143	490	554	99	42.86	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	1224	976	246	2	79.73	...	...	...	...	...	...	
...	...	...	2271	1496	689	86	65.87	1640	1228	278	134	74.87	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	2375	1475	671	229	62.10	...	...	...	...	...	...	
12	1	99.79	...	...	...	...	...	9510	6060	3237	213	63.72	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	1142	638	378	126	55.86	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	260	194	62	4	74.61	...	...	...	...	...	...	
298	83	99.10	2562	1735	733	94	67.72	68113	33280	18708	16125	48.85	153	100	43	10	65.35	...	





